

Total Violations by Marcellus Drilling Companies in PA

100 **Violations of PA Clean Stream Law**
Pennsylvania's Clean Stream Law gives the state the right to protect streams from pollution. The goal of the law is to preserve and improve the purity of the waters of the Commonwealth for public health, animal and aquatic life, recreation, and industrial use. It includes the ability to regulate discharges of sewage and industrial wastes.

10 **Improper Well-Casing Construction**
Well casings and cementing are vital to protecting groundwater supplies from the gas and drilling chemicals that travel through the deep underground drill wells. Marcellus wells are drilled through groundwater supplies, and metal casing and cement are used to form a barrier between ground water and the drilling chemicals, wastewater and natural gas that flow through the well.

268 **Improper Construction of Waste Water Impoundments**
After fracturing a well, about 20 percent of the fluid used returns to the surface where it is stored in tanks or open pits on the well site for later transport to disposal facilities. In addition to the fracturing chemicals, this wastewater also contains heavy salts and minerals picked up during the fracturing process. Violations in this category include improperly lining the pits and the impoundments not being structurally sound.

277 **Improper Erosion & Sediment Plans Developed/Implemented**
Marcellus Shale natural gas well construction involves extensive earth disturbance that can speed erosion, including building roads, drilling pads and installing pipelines. Proper implementation of carefully developed erosion and sediment plans minimize erosion that could cause harm to our streams and rivers. Violations in this category include inadequate erosion and sediment plans and failure to implement an erosion and sediment plan.

17 **Improper Restoration of Extraction Site**
Once a well is no longer producing, the operator must plug the well and restore the site within nine months of plugging the well. Improperly plugged wells can cause health, safety, and environmental problems and non-restored sites leave Pennsylvania's landscape scarred and plant and wildlife habitat damaged.

154 **Discharge of Industrial Waste**
Violations in this category include discharge of industrial waste onto the ground; pollution of Commonwealth waters; and drill cuttings, brine and oil discharged into streams. Of the hydraulic fracturing chemicals the Endocrine Disruption Network was able to analyze, it found that over 94% can cause skin, eye and respiratory harm, 93% can harm the gastrointestinal system and 83% have brain and nervous system effects. Over 40% can affect the kidneys, over 40% can affect the immune system and over 20% are endocrine disruptors. (The Endocrine Disruption Exchange: "Products and Chemicals Used in Fracturing" February 2009).

38 **Permitting Violations***
The DEP permit review process allows state regulators to ensure that drilling activities are done in a manner that best protects the environment. Violations in this category include drilling, altering or operating a well without a permit; drilling close to a wetland or body of water without a permit; and failure to comply with the terms and conditions of a permit. (*These include only those violations the Association has identified as likely having direct impact on the environment. 103 other permitting violations were also identified.)

65 **Faulty Pollution Prevention Practices**
Each step of the drilling process involves opportunities for the toxic chemicals used for gas extraction to pollute land, surface and ground water, and the air. Specific precautions must be taken by drillers to prevent pollution. Violations in this category include exceeding the level of wastewater in the impoundment that is needed to prevent wastewater overflow when it rains and failure to take all necessary measures to prevent spills.

7 **Improper Waste Management**
The drilling process produces many harmful waste products, which must be carefully disposed of to avoid environmental contamination. Violations in this category include improperly burying drill cuttings, which can cause ground water pollution.

16 **Blowout Prevention**
Inadequate blowout prevention led to the June 3rd well blowout in Clearfield County in which 1 million gallons of gas and water polluted with drilling chemicals to shot 75 ft into the air over a 16 hour period. Violations in this category include inadequate or improperly installed blowout preventers, no certified blowout preventer on site, and hazardous well venting.

Pennsylvania Land Trust Association (August 2, 2010)